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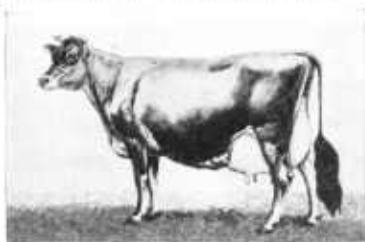
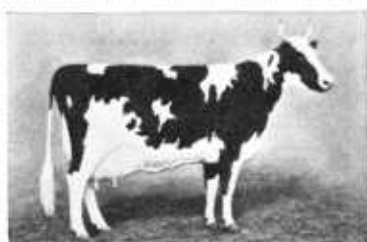
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# U. S. DEPARTMENT OF AGRICULTURE

FARMERS' BULLETIN No. 1443

## DAIRY CATTLE BREEDS



**S**EVERAL BREEDS of cattle in the United States are recognized as dairy breeds. Although much alike in what is known as general dairy conformation, these breeds differ to some extent in certain characteristics. What these characteristics are, the factors to consider in selecting a breed, and the history of the origin and development of the breeds are questions of interest to both the beginner and the established breeder of dairy cattle. These are the topics discussed in this bulletin.

This bulletin supersedes Farmers' Bulletin 893, Breeds of Dairy Cattle.

Washington, D. C.

Issued February 1925  
Revised November 1938

# DAIRY CATTLE BREEDS

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## DAIRY CATTLE IN THE UNITED STATES

According to estimates made by the United States Department of Agriculture, about 36,000,000 cattle of all ages were being kept for dairy purposes in the United States in 1938. About two-thirds of these, or approximately 24,000,000, were cattle of six dairy breeds, namely: Ayrshire, Brown Swiss, Dutch Belted, Guernsey, Holstein-Friesian, and Jersey. Of the other one-third, about 8,000,000, or 22 percent, were cattle of dual-purpose and beef breeds used for milk production, and about 4,000,000, or 11 percent, were cattle of no particular breed.

Of the 24,000,000 cattle of the dairy breeds, about 4.5 percent, or 1,088,000, are registered. Much of the improvement in our dairy cattle will continue to come from increasing the number of good registered animals and through the use of good registered bulls in grade dairy herds. The development of good grade dairy herds from herds of no particular breed can be accomplished in a few generations by the use of good registered bulls. For these reasons, registered dairy cattle have played in the past and will play in the future a very important role in the dairy industry of the Nation.

## NUMBER AND DISTRIBUTION OF BREEDS

Table 1 shows the estimated total number of grades and registered dairy cattle of each dairy breed in the United States and different parts of the country on January 1, 1932. The relative percentages of each breed in the different sections are based on information obtained from the Bureau of Agricultural Economics from an inquiry sent to over 21,000 crop correspondents in February 1932. Grades were listed with the breeds to which they seemed to belong. The number of cattle of each breed on January 1, 1932, was determined from the total cattle kept for dairy purposes in each section and the relative numbers that were of these breeds in the herds of crop correspondents. There were about 23,700,000 dairy cattle in the United States (including possibly 650,000 dairy bulls in use) at that time.

TABLE 1.—*Approximate number and distribution of cattle of dairy breeds, including registered and grades, by sections, in the United States, Jan. 1, 1932*

Breed	Cattle of dairy breeds	Relative distribution of breeds						
		United States	North Atlantic States	North Central States, west	North Central States, east	South Atlantic States	South Central States	Western States
	Number	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Ayrshire.....	317,000	1.4	4.0	0.6	1.4	0.4	0.3	1.0
Brown Swiss.....	248,000	1.0	.8	2.0	1.3	.3	.4	.5
Guernsey.....	3,709,000	15.7	21.6	20.6	13.5	19.6	2.4	17.5
Holstein.....	9,465,000	39.9	56.5	46.7	53.7	12.7	9.2	47.0
Jersey.....	9,961,000	42.0	17.1	30.1	30.1	67.0	87.7	33.8
Total.....	23,700,000	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The numbers and percentages for distribution of each breed in 1938 are believed to be not far from those shown in table 1 for 1932. There have been some minor changes, but little information is available as to the direction of these changes.

Dutch Belted cattle, though comparatively few in number, are widely distributed in the United States.

Of the large numbers of cattle of dual-purpose breeds kept for milk, cattle of the Shorthorn breed are the most numerous, and are widely distributed in all States. Those breeds most commonly used for milk are indicated in table 4.

Table 2 shows the number of registered cattle of the dairy breeds on January 1, 1930, as enumerated by the census, by sections and by States.

TABLE 2.—*Purebred (registered) cattle of the dairy breeds on farms in 1930, by States and sections, as shown by the census*

Division and State	Total	Ayrshire	Brown Swiss	Guernsey	Holstein-Friesian	Jersey	All other breeds <sup>1</sup>
United States.....	1,280,161	48,236	25,734	200,721	649,739	354,939	792
Geographic divisions:							
New England.....	87,889	12,256	467	19,397	32,567	23,089	113
Middle Atlantic.....	281,054	20,584	2,177	46,916	180,095	31,220	62
East North Central.....	401,332	5,295	13,947	66,368	233,768	81,804	150
West North Central.....	211,884	5,106	7,984	30,046	123,610	44,869	269
South Atlantic.....	72,467	1,536	206	20,577	21,200	28,885	63
East South Central.....	57,704	166	22	1,441	4,446	51,628	1
West South Central.....	66,877	316	102	1,755	7,171	57,458	75
Mountain.....	36,489	1,007	229	4,030	21,878	9,328	17
Pacific.....	64,465	1,970	600	10,191	25,004	26,658	42
New England:							
Maine.....	16,021	1,096	89	4,003	4,613	6,134	86
New Hampshire.....	11,179	2,115	55	2,555	5,153	1,301	-----
Vermont.....	25,716	4,065	145	3,468	7,986	10,045	7
Massachusetts.....	19,552	2,753	105	5,491	8,187	3,013	3
Rhode Island.....	3,182	429	13	796	1,555	388	1
Connecticut.....	12,239	1,798	60	3,084	5,073	2,208	16
Middle Atlantic:							
New York.....	155,626	14,881	1,230	19,390	106,311	13,799	15
New Jersey.....	17,075	316	164	3,925	10,232	2,397	41
Pennsylvania.....	108,353	5,387	783	23,601	63,552	15,024	6
East North Central:							
Ohio.....	82,102	1,441	940	12,440	35,027	32,253	1
Indiana.....	35,751	535	553	6,429	12,103	16,094	37
Illinois.....	59,615	625	4,474	5,241	29,060	10,179	36
Michigan.....	71,750	777	1,547	11,736	41,786	15,844	60
Wisconsin.....	152,114	1,917	6,433	30,522	105,792	7,434	16

FIGURE 2.—*Purebred (registered) cattle of the dairy breeds on farms in 1930, by States and sections, as shown by the census—Continued*

Division and State	Total	Ayrshire	Brown Swiss	Guernsey	Holstein-Friesian	Jersey	All other breeds
West North Central:							
Minnesota.....	78,650	1,066	3,176	15,147	54,072	5,141	48
Iowa.....	43,702	733	3,414	6,569	26,211	6,711	64
Missouri.....	31,548	160	144	2,289	7,875	21,030	50
North Dakota.....	9,354	118	339	1,454	6,950	493	—
South Dakota.....	9,141	312	488	1,203	6,516	595	27
Nebraska.....	11,933	420	146	1,240	7,865	2,250	12
Kansas.....	27,556	2,297	277	2,144	14,121	8,649	68
South Atlantic:							
Delaware.....	2,896	86	—	877	1,545	388	—
Maryland.....	19,294	661	57	6,093	9,553	2,885	45
District of Columbia.....	234	—	—	1	231	2	—
Virginia.....	14,150	82	35	5,288	5,756	2,989	—
West Virginia.....	6,863	293	107	1,112	1,668	3,682	1
North Carolina.....	11,788	362	1	3,393	978	7,054	—
South Carolina.....	5,969	—	—	2,430	763	2,776	—
Georgia.....	8,432	2	3	947	388	7,092	—
Florida.....	2,841	50	3	436	318	2,017	17
East South Central:							
Kentucky.....	16,903	32	20	616	2,953	13,281	1
Tennessee.....	18,869	34	2	210	894	17,729	—
Alabama.....	6,764	23	—	212	143	6,386	—
Mississippi.....	15,168	77	—	403	456	14,232	—
West South Central:							
Arkansas.....	6,532	5	5	264	514	5,737	7
Louisiana.....	4,234	1	—	123	431	3,679	—
Oklahoma.....	16,130	233	92	867	3,770	11,167	1
Texas.....	39,981	77	5	501	2,456	36,875	67
Mountain:							
Montana.....	4,551	111	125	653	3,167	495	—
Idaho.....	9,557	194	27	1,577	4,842	2,917	—
Wyoming.....	1,596	1	11	194	1,127	262	1
Colorado.....	8,155	403	42	764	5,669	1,277	—
New Mexico.....	1,322	13	—	54	463	777	15
Arizona.....	3,427	166	15	276	1,956	1,014	—
Utah.....	6,848	35	—	485	3,901	2,427	—
Nevada.....	1,033	84	9	27	753	159	1
Pacific:							
Washington.....	19,597	691	140	3,960	8,125	6,681	—
Oregon.....	21,755	328	261	3,190	3,577	14,360	39
California.....	23,113	951	199	3,041	13,302	5,617	3

<sup>1</sup> Including animals reported as registered, but with breed not specified.

Table 3 gives the average production of milk and butterfat of the cows having official yearly records in the breed associations.

TABLE 3.—*Average yearly production of milk and butterfat of the cows of different breeds that had official yearly records to Jan. 1, 1938*

Breed	Advanced register or register of merit				Herd-improvement test			
	Records of cows and heifers	Milk	Butterfat		Records of cows and heifers	Milk	Butterfat	
			Quantity	Test			Quantity	Test
Ayrshire.....	<sup>1</sup> 9,022	Pounds 10,446	Pounds 416	Percent 4.0	<sup>1</sup> 20,571	Pounds 8,351	Pounds 338	Percent 4.0
Brown Swiss.....	939	13,643	548	4.0	984	8,577	352	4.1
Guernsey.....	49,212	10,095	502	5.0	5,229	8,629	425	4.9
Holstein-Friesian.....	<sup>2</sup> 56,007	16,005	546	3.4	<sup>3</sup> 52,369	11,101	380	3.4
Jersey.....	56,789	8,556	459	5.36	27,364	6,797	559	5.3

<sup>1</sup> Includes 1,952 305-day records.

<sup>2</sup> Includes 15,354 10-month records.

<sup>3</sup> Up to Oct. 1, 1937.

Table 4 shows the breeds of milk cows in different sections of the United States and in herds of various sizes. The relative numbers in each of the different-sized herds are calculated according to the distribution shown for 1932, when an inventory was taken on February 1 of the herds of 21,554 crop correspondents scattered throughout the United States, to show the approximate distribution of cows kept for dairy purposes by breeds, at that time. The relative number of cows kept for dairy purposes, both grade and registered, combined, is expressed as a percentage for each of the breeds, in each group of States and in each of the different sized herds.

TABLE 4.—*Breeds of cows kept for dairy purposes in different parts of the United States and in herds of various sizes, Jan. 1, 1932*<sup>1</sup>

Region and size of herd	Cows kept for dairy purposes <sup>2</sup>	Distribution, by breeds						
		Holstein	Jersey	Guernsey	Ayrshire and Brown Swiss	Short-horn and Red Polled	Hereford, Aberdeen, Angus, and others	Mixed breeding
Region:	<i>Number</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
North Atlantic.....	3, 213, 000	51.1	15.5	19.5	4.3	2.6	0.4	6.6
East North Central.....	5, 880, 000	36.0	23.2	15.9	2.0	12.7	1.9	8.3
West North Central.....	7, 028, 000	23.9	13.4	6.0	1.2	36.2	7.8	11.5
South Atlantic.....	1, 825, 000	8.9	47.1	13.8	.5	6.1	4.7	18.9
South Central.....	4, 741, 000	6.3	60.0	1.7	.5	9.3	4.2	18.0
Western.....	2, 209, 000	35.5	24.2	12.7	1.1	16.2	3.4	8.9
United States.....	24, 896, 000	26.8	28.2	10.5	1.6	17.2	4.2	11.6
Number of milk cows per farm:								
1.....	1, 454, 000	8.4	60.0	7.0	1.1	5.5	1.7	16.3
2 or 3.....	3, 399, 000	11.5	48.8	7.7	.9	12.2	3.8	17.1
4 or 5.....	3, 346, 000	16.4	34.0	9.1	1.1	19.0	4.0	15.4
6 to 10.....	6, 969, 000	24.4	22.8	9.8	1.5	23.6	4.9	12.8
11 to 20.....	6, 413, 000	37.3	16.8	12.4	2.1	19.3	4.1	8.0
21 to 30.....	1, 873, 000	46.8	20.3	13.1	2.2	9.8	3.5	4.3
31 to 50.....	864, 000	46.8	25.3	12.9	2.6	4.7	1.9	5.8
Over 50.....	578, 000	39.8	26.8	17.2	2.6	6.6	2.2	5.0
Total.....	24, 896, 000	26.8	28.2	10.5	1.7	17.2	4.1	11.6

<sup>1</sup> Prepared by John B. Shepard, Bureau of Agricultural Economics.

<sup>2</sup> Estimated number of cows and heifers 2 years old and over kept for milk Jan. 1, 1932.

The breed data in table 4 above are believed to be approximately representative of conditions in 1938. Little information is available as to the relative increases or decreases within or among the breeds, but the total numbers of cows kept for dairy purposes in 1938 in different regions, as shown in table 5, do not differ greatly from those in 1932. The total number in the West North Central States, however, had decreased to about 6,593,000, which was about 435,000 less than in 1932; and the number in the South had increased to 6,923,000, which was about 357,000 more than in 1932. The total number in the United States was about the same for each of these years.

#### WHAT IS A DAIRY BREED?

The term "dairy breed" has been accepted by stockmen and investigators as referring to the breeds of cattle that are especially well fitted for the production of milk and butterfat. Such breeds repre-

sent the efforts made by breeders of many generations toward improving the milking capacity of certain classes of cows. Because of this fact the inherent tendency of registered dairy cows to produce milk is greater than that of a native or unimproved cow. This inherent capacity is transmitted to the offspring. As a result, the mating of a registered dairy animal with a native or scrub produces a grade animal which is superior to the scrub in production and in other dairy characteristics.

TABLE 5.—*Number of cows kept for dairy purposes, Jan. 1, 1932–38*

Region	Number of cows and heifers 2 years old and over kept for milk, Jan. 1 <sup>1</sup>						
	1932	1933	1934	1935	1936	1937	1938
North Atlantic.....	3, 213, 000	3, 260, 000	3, 256, 000	3, 173, 000	3, 175, 000	3, 219, 000	3, 249, 000
East North Central.....	5, 880, 000	6, 045, 000	6, 247, 000	6, 151, 000	6, 027, 000	5, 994, 999	5, 968, 000
West North Central.....	7, 028, 000	7, 351, 000	7, 763, 000	7, 214, 000	6, 982, 000	6, 718, 000	6, 593, 000
South Atlantic.....	1, 825, 000	1, 921, 000	1, 982, 000	2, 008, 000	1, 979, 000	1, 945, 000	1, 918, 000
South Central.....	4, 741, 000	5, 081, 000	5, 342, 000	5, 264, 000	5, 086, 000	4, 982, 000	5, 005, 000
Western.....	2, 209, 000	2, 278, 000	2, 341, 000	2, 259, 000	2, 190, 000	2, 183, 000	2, 169, 000
Total, United States..	24, 896, 000	25, 936, 000	26, 931, 000	26, 069, 000	25, 429, 000	25, 041, 000	24, 902, 000

<sup>1</sup> Bureau of Agricultural Economics, U. S. Department of Agriculture.

A registered dairy animal is one that has met the requirements for registration laid down by the association for that breed in the United States. A grade is the offspring resulting from mating a registered animal with a scrub, or from mating animals not registered but having near ancestors that are registered. The offspring of a registered animal and a grade is also a grade, and through progressive use of registered bulls such animals become high grade. The names of the breeds (Ayrshire, Brown Swiss, etc.) may refer to either registered or grade animals; but to prevent misunderstanding it is desirable to precede the breed name with the word "registered" or "grade."

In addition to the breeds of dairy cattle mentioned, cows of other breeds, including both the beef and dual-purpose, are kept for dairy purposes. These are discussed in Farmers' Bulletin 612, Breeds of Beef Cattle.

#### REGISTRATION

To be eligible for registration a dairy animal must be from a sire and dam which are recorded by name and number in a register of the breed, commonly called the herdbook. The animal must also meet certain color qualifications and other requirements for registration which are laid down by the various breed organizations. Copies of these rules may be obtained by writing to the associations concerned, as listed on page 34.

In addition to the herd register there is for each breed another register in which are entered the names of registered cows that have completed records meeting specified requirements of milk and butter-fat production under definite regulations. Bulls that have a certain number of tested daughters are also recorded in this register. This record of tested cows, and of bulls with tested daughters, is called by various names—Advanced Registry for the Ayrshires and Dutch



Belted, Register of Production for the Brown Swiss, Advanced Register for the Guernseys and Holsteins, and Register of Merit for the Jerseys.

The Ayrshire, Brown Swiss, Guernsey, Holstein, and Jersey organizations have each adopted a supplementary register called the Herd Test, or Herd-Improvement Registry. This differs from the Advanced Register and Register of Merit in that breeders must test and report the production of every cow in the herd, rather than only a few selected animals.

If the owner of registered dairy cows is a member of a dairy herd-improvement association, his whole herd will be on test in that organization. Tests made of registered cows in such associations may be used for the Herd-Improvement Test by national dairy breed associations, if the owners of the herds have applied for admission of their herds to the Herd-Improvement Test registers of the breed associations, and the records have been approved by the State agricultural colleges or experiment stations.

Requirements for admission to the breed registers of production (advanced register and herd-test register) and the rules under which the records must be made vary somewhat for the different breeds. Detailed information on this point may be obtained from the breed associations concerned.

#### WHICH BREED TO SELECT

Sometimes too much emphasis is given to the question of which breed to choose and too little to the matter of getting good individuals—that is, those that are well bred and high producers. There are three points, however, that should be considered in deciding which breed to select. These are (1) the breed that predominates in the locality where the new herd is to be located, (2) personal preference, and (3) market requirements for the product.

#### THE BREED THAT PREDOMINATES

A dairyman just starting with registered animals should as a rule select the same breed as his neighbors. It is difficult for an isolated small breeder to dispose of his surplus stock to advantage, while if there are many breeders with the same breed, buyers are attracted to the locality because of the better chance of getting the desired animals from one or more of the several breeders.

There are other advantages to a dairyman in having the same breed as his neighbor, such as the possibility of exchanging bulls, and of owning good registered bulls cooperatively. These advantages are obtained by those having grade herds as well as by those with registered cows. Then there is also the opportunity for taking advantage of special breed sales of surplus stock, and, lastly, the advantage of bringing the community together in other endeavors which usually result where there is but one breed.

#### REGIONAL DIFFERENCES IN BREED PREFERENCES

As shown in table 4, there are sharp differences in the breed of dairy cattle preferred by farmers in the various parts of the country. In general, the percentage of Jerseys averages highest in the South

and in areas where most of the farmers sell cream. Holsteins are most numerous in sections where the milk is sold largely for making cheese or evaporated milk, but there are also large numbers in the large herds kept in the principal market-milk areas. Guernseys are most numerous in the main dairy States, the numbers kept in market-milk areas depending in part on the differential paid for milk of high color and high test. Ayrshires and Brown Swiss are distributed somewhat as are Guernseys, but there are relatively few in the South and West. Shorthorns kept for milk are most numerous where beef production is important, chiefly in the central and western portions of the Corn Belt and in the Great Plains area.

#### PERSONAL PREFERENCE

In a district where no breed is established, or in sections where several breeds are about equally represented, the prospective breeder must be guided largely by his personal preference. A person usually takes a liking to one breed, for reasons not easily explainable. Naturally, he would take more interest in caring for animals of that breed than for those of a breed that he does not like so well.

Personal preference, however, must not overshadow the matter of quality of individual animals. If high-producing individuals of the breed not so well liked are available at reasonable cost, and individuals of the same quality of the breed well-liked are not available except at a much higher cost, it may be wiser to select the former, for usually a dairyman soon begins to like a breed with which he is doing well.

#### MARKET REQUIREMENTS FOR PRODUCT

Market requirements for the product should not be overemphasized in selecting the breed. For a time a dairyman may sell his product in a market where low-testing milk has the advantage, while later the conditions may be changed, and a high-testing milk will sell to better advantage. Obviously, a breeder cannot shift from one breed to another to meet the fluctuations in market demands.

When selling to a city milk plant, however, the price paid for the extra butterfat over the basic test, or deducted from the standard price when the milk is below basic test, may well be considered in selecting the breed. The point here is that sometimes in some whole-milk markets the differential may favor high-testing milk, and at other times or in other markets it may favor low-testing milk.

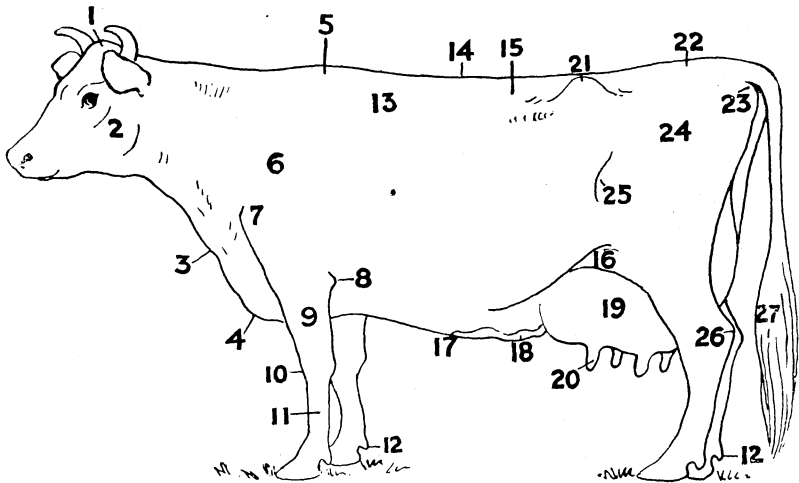
In summing up the matter of which breed to select this point should be kept in mind—there are good cows and poor cows in all breeds and, other things being equal, the breeder or dairyman who gets good individuals to begin with will have a good chance for success no matter what breed he selects.

#### THE SCORE CARD

Each breed association has a scale of points, or score card, for bulls and cows of that breed. The card gives definite values for the various characteristics of conformation, and emphasizes points requiring special attention from breeders. The purpose of the score card is to teach beginners the art of judging and also to encourage the forma-

tion of what is considered by breeders, through their associations, as the ideal type. It tends to make the breed uniform in appearance. The scale of points for a cow is given in this bulletin with the description of each breed.

In order to make the score cards more useful, a diagram is given in figure 1 which names and locates the various parts referred to on the score cards.



- |                      |               |               |
|----------------------|---------------|---------------|
| 1. POLL              | 10. KNEE      | 19. UDDER     |
| 2. JAW               | 11. SHANK     | 20. TEAT      |
| 3. DEWLAP            | 12. DEW CLAW  | 21. HIP POINT |
| 4. BRISKET           | 13. CROP      | 22. RUMP      |
| 5. WITHERS           | 14. CHINE     | 23. PIN BONE  |
| 6. SHOULDER          | 15. LOIN      | 24. THURL     |
| 7. POINT OF SHOULDER | 16. FLANK     | 25. STIFLE    |
| 8. POINT OF ELBOW    | 17. MILK WELL | 26. HOCK      |
| 9. FOREARM           | 18. MILK VEIN | 27. SWITCH    |

FIGURE 1.—Diagram of a cow, showing names and locations of parts.

#### AYRSHIRE

##### ORIGIN AND HISTORY

The Ayrshire breed originated in southwestern Scotland, in the county of Ayr, in the latter part of the eighteenth century. Doubtless cattle from several neighboring countries were used in the formation of the breed, though there is no record of direct foreign importations to the county of Ayr at that time. While this foreign blood probably had a good effect on the ultimate value of the breed, the substantial and efficient development of the breed seems to have come about mostly through subsequent judicious selection and mating.

##### IMPORTATION AND DISTRIBUTION

The first importations of Ayrshires into the United States occurred in 1822. Since then Ayrshires have been imported almost every year,

either from Scotland or Canada. Table 1 shows that in 1932 there were in the United States 317,000 animals carrying more or less Ayrshire blood. According to table 2, there were, in 1930, 48,236 registered Ayrshires in the United States. By January 1, 1938, it is estimated that the number of registered Ayrshires had increased to 72,454.<sup>1</sup> Ayrshires are scattered through practically all the States, though by far the largest numbers are in the Northeastern States.

#### GENERAL CHARACTERISTICS

The Ayrshire has a well-built, stocky body, not heavily covered with flesh, but giving the appearance of great vigor and vitality. The

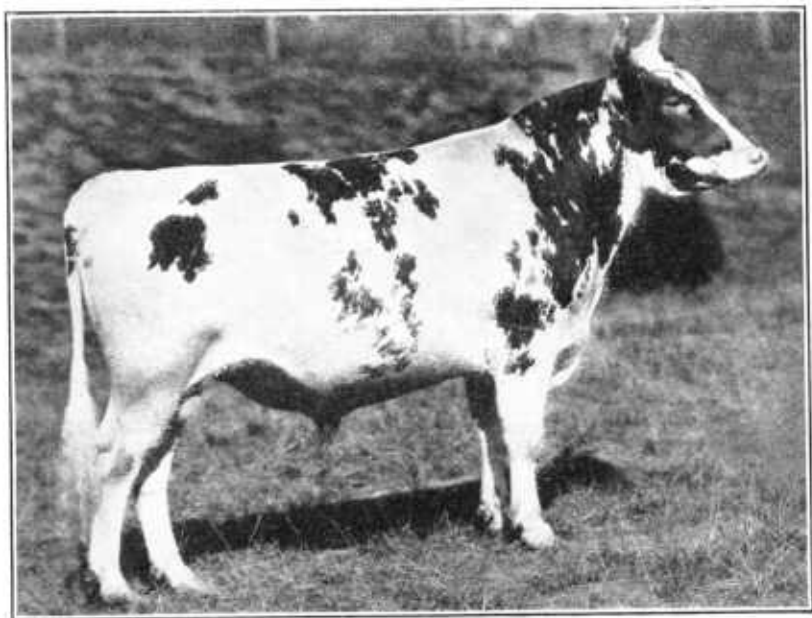


FIGURE 2.—Ayrshire bull, Willoxton Satisfaction 42680. Grand Champion, National Dairy Show, 1930.

calves weight from 60 to 80 pounds at birth. The weight of mature bulls (fig. 2) varies from 1,500 to 2,000 pounds; with an average of about 1,650 pounds, while mature cows range in weight from 850 to 1,250 pounds, and average about 1,050 pounds.

The color varies from almost pure white to nearly all cherry red or brown, with any combination of these colors. Usually the tail is white. The horns are large, and turn gracefully outward, then forward and back, giving a distinctive appearance to the head.

Ayrshire cows are noted for their symmetrical udders, which extend well forward and back, with no tendency to be pendulous. The quarters are generally even; the teats medium in size and well-placed (figs. 3 and 4).

<sup>1</sup> This figure has been calculated from yearly registrations, the allowances for deaths being estimated and 1930 census figures used as a check.

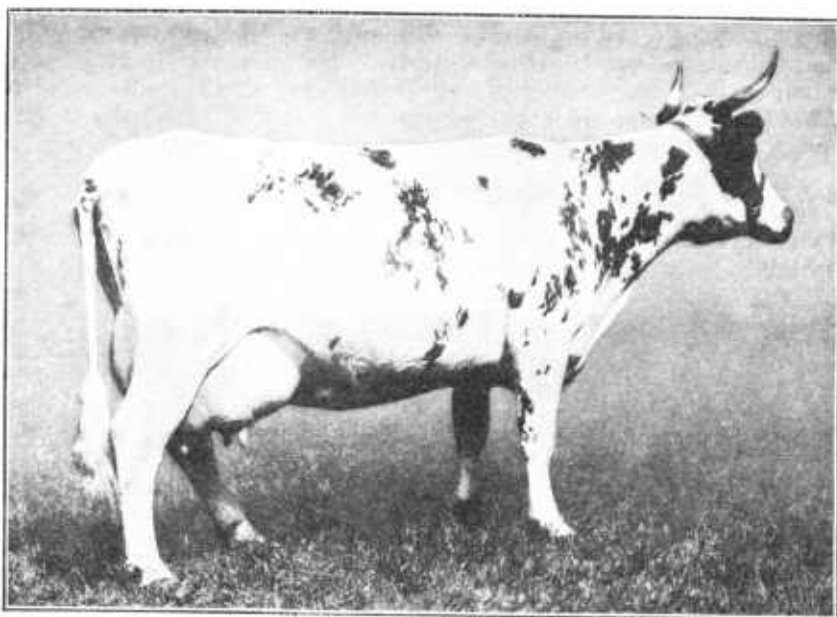


FIGURE 3.—Ayrshire cow, Lily of Willowmoor 22269. Champion butterfat producer of the breed in the United States.

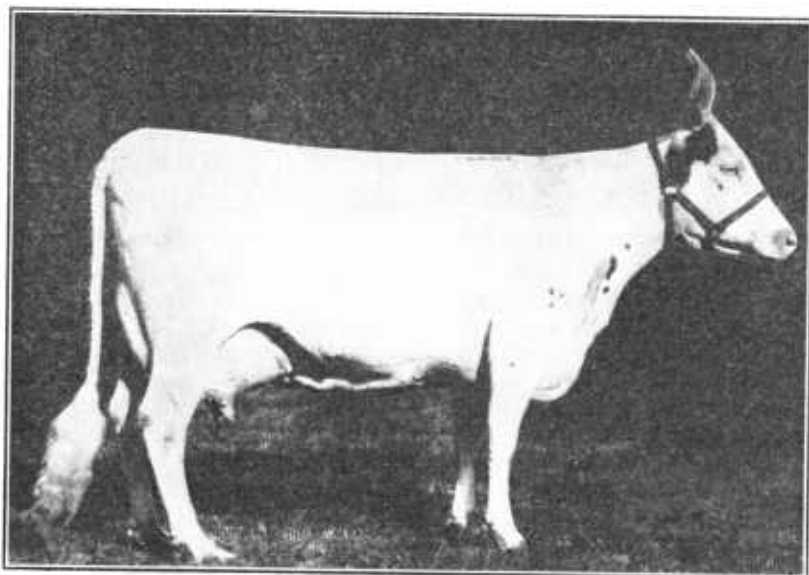


FIGURE 4.—Ayrshire cow, Garelaugh May Mischief 27944. Champion milk producer of the breed in the United States.

## SCALE OF POINTS FOR AYRSHIRE COW OR HEIFER

ANATOMY		Perfect score
Head -----		9
Forehead, reasonably broad between the eyes and slightly dished -----	1	
Face, of medium length, clean cut, feminine; the bridge of the nose straight to nostrils -----	1	
Muzzle, broad and strong, with large open nostrils -----	2	
Jaws, wide at the base, well muscled, and strong -----	1½	
Eyes, moderately large, placid, full, and bright -----	1½	
Ears, medium size, fine, and carried alertly -----	½	
Horns, small at base, not coarse nor too long; inclining upwards -----	1½	
Neck, medium length, smoothly blending with shoulders and throat, showing feminine refinement -----		2
Shoulders, long, sloping and tapering from the base to the top of the shoulder blades; neatly and firmly attached to the body wall; tops of the blades not extending to the top of chine -----		5
Chest, full, and wide between and back of forearms; brisket light and refined -----		5
Chine, straight, strong, open jointed, narrow at the top, nicely blending into shoulders and a well-sprung rib -----		3
Crops, full, level with shoulders -----		4
Barrel, medium length, deep, but strongly held up; rib, well sprung; bones long, flat, and wide apart -----		10
Loin, broad, strong, and level with hips -----		4
Rump or pelvic area, wide, long, and roomy; top line extending level from loin to and including tail head -----		12
Hips, wide, with points rather sharply defined and level with back line -----		
Pin bones, wide apart and nearly level with hip bones; well defined, not overlaid with fat -----		
Thurls, broad and set slightly below line from hip points to pin bones -----		
Tail head, level with back line, neatly molded, and showing no evidence of roughness -----		
Tail, long and fine, with full switch -----		1
Flank, deep, slightly arched, and refined -----		1
Thighs, deep, straight and trim when viewed from the side. Flat and broad on sides. Twist or inside of thighs well cut out for udder develop- ment, with escutcheon well defined and carried high -----		2
Legs and feet, widely and squarely set under body; clean flat bone, front legs straight; hind legs nearly straight when viewed from rear; hocks and pasterns neatly and firmly molded; feet round, with plenty of depth at heels -----		8
Hide and hair, mellow, elastic hide of medium thickness; hair fine and soft		4
Mammary system -----		30
Size and shape of udder, broad, level, capacious, extending well forward and high behind; quarters even and of uniform size; floor of udder should be reasonably level and not deeply cut up between the quarters -----	10	
Attachment of udder, attached well forward with a neat and firm junction at body wall; carried wide and high behind, no evi- dence of breaking of tissues supporting front quarters nor of dropping of floor of udder -----	6	
Texture of udder, fine, soft, and pliable, with light skin -----	4	
Size, shape, and placement of teats, convenient size, symmetrical and nearly uniform, each hanging perpendicularly under the quarter; funnel-shaped teats objectionable -----	5	
Veining and milk wells, mammary veins large, long, tortuous, branching, and entering large or numerous milk wells; small veins clearly defined on udder -----	5	

Perfect anatomy score -----

100

## BREED CHARACTERISTICS

In addition to the foregoing anatomy score of 100 points, which is applicable to all dairy cows, it has been deemed expedient to consider the following factors covering desirable Ayrshire breed characteristics.

To use this supplementary schedule, score the number of points in which the animal is deficient in each of the following breed characteristics, and deduct from the foregoing anatomy score the total number of points in which the animal is deficient.

Style and quality, alert but docile; having an impressive carriage; graceful walk; and, above all, displaying evidence of feminine refinement and outstanding dairy character-----	7
Symmetry and balance, a symmetrical balancing of all the parts and the proper proportioning of the various parts to each other-----	7
Size and weight, mature cows should weight from 1,100 to 1,400 pounds, depending on period of lactation-----	4
Color, red of any shade, mahogany, brown, or these with white, or white, each color clearly defined. Distinctive red and white markings preferable; black or brindle markings strongly objectionable-----	2
Total deductions possible-----	20

## PRODUCTION

Ayrshire milk contains about 4 percent butterfat, which is about the average for all the dairy breeds. The 9,022 yearly records completed by 6,806 Ayrshire cows and heifers in the Advanced Registry up to January 1, 1938, include 1,952 305-day records, and average 10,446 pounds of milk and 416 pounds of butterfat per cow.

Under Herd-Test rules 268 Ayrshire herds completed 20,571 yearly individual cow records up to January 1, 1938, with an average per cow of 8,351 pounds of milk and 338 pounds of butterfat with an average test of 4 percent.

The 10 highest butterfat and the 10 highest milk producers among the Ayrshires, up to January 1, 1938, are listed in table 6.

TABLE 6.—*The 10 highest Ayrshire yearly butterfat and milk production records in the United States*

Cow	Butterfat	Cow	Milk
	<i>Pounds</i>		<i>Pounds</i>
Lily of Willowmoor 22269-----	955.6	Garclaugh May Mischief 27944-----	25,329
Vi's Bountiful Lassie 58096-----	923.2	Vi's Bountiful Lassie 58096-----	24,556
Auchenbrain Brown Kate 4th 27943-----	917.6	Mistress Thistle of South Farm 49818-----	23,029
Garclaugh May Mischief 27944-----	894.9	Auchenbrain Brown Kate 4th 27943-----	23,022
Auchenbrain Yellow Kate 3d 36910-----	888.3	Lily of Willowmoor 22269-----	22,596
Agawam Bess Howie 43781-----	876.1	Garclaugh Spottie 27950-----	22,589
Harperland Spicy Lass 40652-----	866.2	Nancy Whitehall 47810-----	22,074
Jean Armour 3d 32219-----	859.6	Jean Armour 3d 32219-----	21,938
Nancy Whitehall 47810-----	858.8	Bloomer's Queen 39119-----	21,820
Bloomer's Queen 39119-----	856.4	Willowmoor May Mischief 2d A 34173-----	21,161

## BULLS

Table 7 lists 10 registered Ayrshire bulls that were proved in dairy herd-improvement associations and selected from tabulations made by the Bureau of Dairy Industry between November 1, 1935, and April 1, 1938, and reported in United States Department of Agriculture

Miscellaneous Publication 277 and Miscellaneous Publication 315.<sup>2</sup> For a bull to be considered for inclusion in this table, he must have met the following requirements:

(1) He must have had five or more unselected daughters with production records, whose dams also had production records.

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds.

(3) The dams of his daughters must have had an average butterfat production of 300 or more pounds.

Records of the daughters and their dams are converted where necessary to a twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records is taken.

From the sires that met these conditions the 10 whose daughters average the highest in butterfat production were selected.

TABLE 7.—*Ten registered Ayrshire sires proved in dairy herd-improvement associations*

Name of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>
Penshurst Leto Lad 44041.....	5	446	57
Lady's Leto of Sylvan View 43336.....	9	440	46
Bay State Perry 39515.....	5	438	52
Captain Clip of Sand Hill 36656.....	15	424	73
Reginald of Elmerest 39949.....	6	423	93
King Henry Star 35805.....	11	420	110
Silverton 35607.....	5	414	28
Penstate's Sir Robert 34004.....	7	407	37
Penshurst Cherub 41663.....	15	404	31
Schuykill Champion 38925.....	5	390	72

## BROWN SWISS

### ORIGIN AND HISTORY

The original home of the Brown Swiss breed is in Switzerland, where the breed has been developed during many centuries. It is probably one of the oldest in existence, and it is thought that no outside blood has been introduced since records began.

### IMPORTATION AND DISTRIBUTION

The first importation of Brown Swiss into the United States was made in Massachusetts in 1869 and another in 1882. Several importations have been made since but only in small numbers. After 1906 there were only a few importations because of regulations due to the prevalence of foot-and-mouth disease in Europe. Table 1 shows that, in 1932, there were in the United States 248,000 animals carrying more or less Brown Swiss blood. According to table 2, there were, in 1930, 25,734 registered Brown Swiss animals in the

<sup>2</sup> The total number of proved sires reported in these publications is 2,292. Of this number, 93 are Ayrshires, 52 Brown Swiss, 431 Guernseys, 1,246 Holsteins, 464 Jerseys, and 6 Shorthorns.



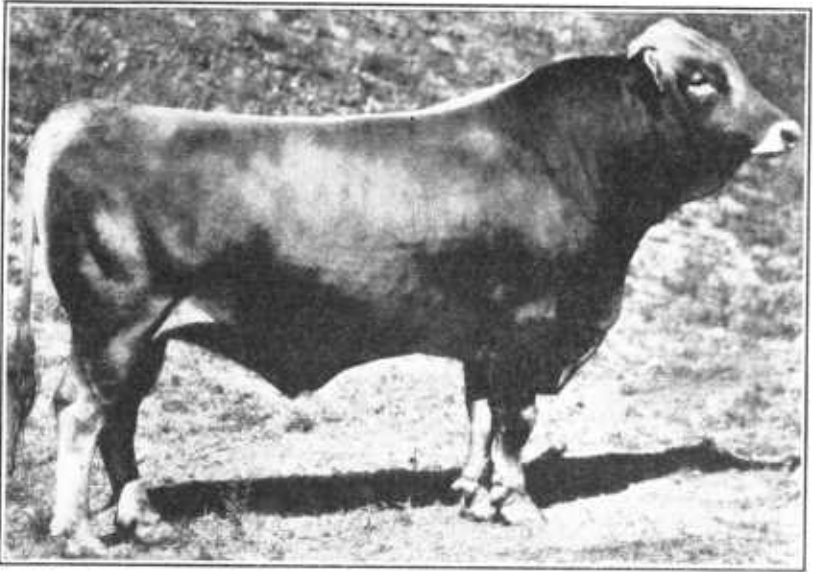


FIGURE 5.—Brown Swiss bull, March Molly 3d's Master 11350, Grand Champion, National Dairy Show, 1930.

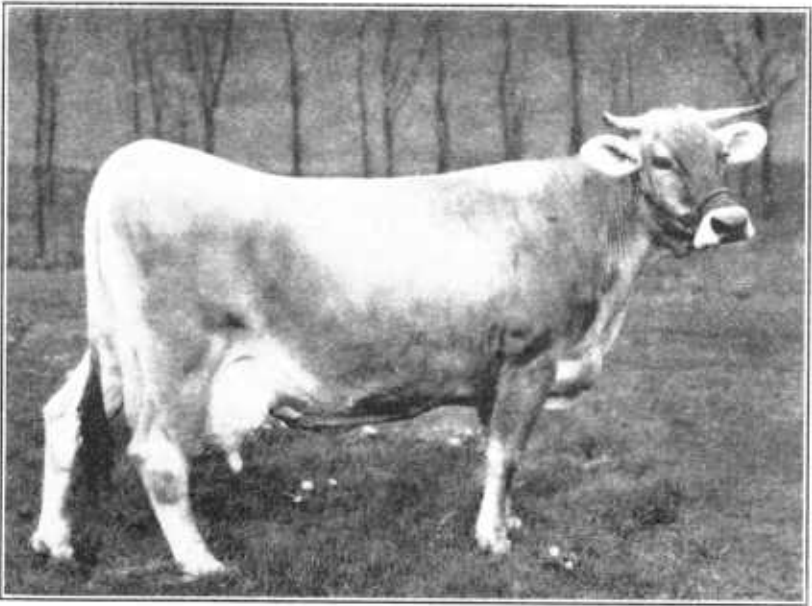


FIGURE 6.—Brown Swiss cow, Illini Nellie 26578, Champion milk and butterfat producer of the breed in the United States.

United States. By January 1, 1935, it is estimated that the number of registered Brown Swiss had increased to 40,689.<sup>3</sup> Brown Swiss are scattered in 37 States, the largest numbers being in Wisconsin, Illinois, Iowa, Minnesota, New York, Michigan, Ohio, and Pennsylvania.

#### GENERAL CHARACTERISTICS

The large frame of the Brown Swiss cattle indicates that they have been developed for service as draft animals as well as for milk. They are sturdy in appearance, with well-developed brisket and dewlap, and with the body well-covered with flesh (figs. 5, 6, and 7). The calves weigh from 65 to 90 pounds at birth. The heifers are slow in maturing. When full-grown, the cows weigh from 1,100 to 1,500 pounds, averaging about 1,250 pounds; and the bulls range in weight from 1,500 to 2,200 pounds, averaging about 1,750 pounds.

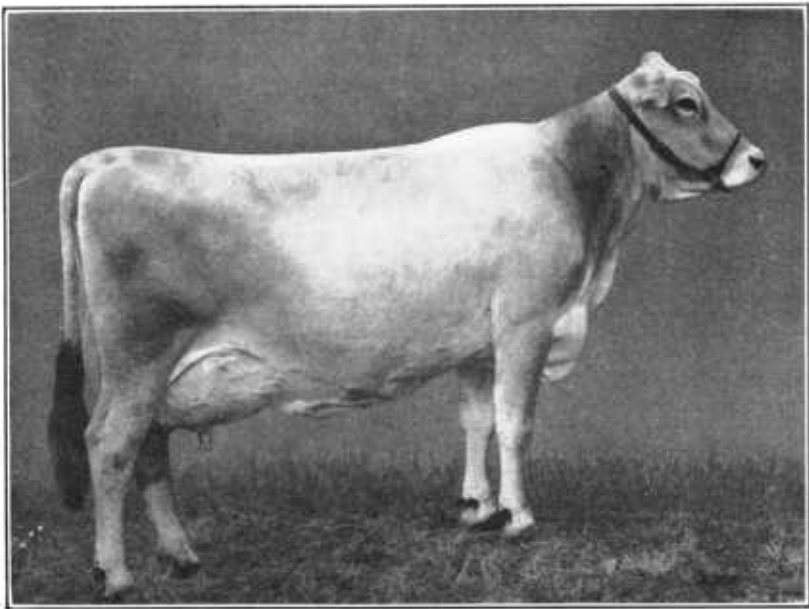


FIGURE 7.—Brown Swiss cow, Jane of Vernon 29496. Grand champion, Dairy Cattle Congress, 1934.

The color of the Brown Swiss varies from dark to light brown, and at some seasons of the year approaches gray. There is usually a light stripe of gray along the back. White splashes near the udder are found on some animals, but white splashes on the sides of the body or on the back are objectionable. The hair between the horns is usually of a lighter shade than that on the body. The nose, switch, tongue, and horn tips are always black, and there is usually a light or mealy ring around the muzzle.

<sup>3</sup> See footnote 1, p. 9.

## SCALE OF POINTS FOR BROWN SWISS COW OR HEIFER

		<i>Perfect score</i>
Head-----		10
Size and form, medium and rather long-----	2	
Face, dished, narrow between horns, and wide between eyes-----	2	
Ears, fringed inside with light-colored hair, medium size, and carried alert-----	1	
Muzzle, large and square, with mouth surrounded by mealy-colored band; nose and tongue black-----	2	
Eyes, full and bright-----	2	
Horns, short, not too heavy, regularly set, with black tips-----	1	
Neck, of good length, throat clean, neatly joined to head and shoulders, moderately thin at the withers-----		5
Forequarters-----		9
Shoulders, not too heavy and smoothly blending into body-----	4	
Chest, deep and full between and back of forelegs-----	4	
Brisket, medium-----	1	
Body-----		13
Back, level to setting of tail and broad across the loin-----	6	
Ribs, long and broad, wide apart, and well sprung-----	3	
Barrel, long, deep, and well-rounded-----	4	
Hindquarters-----		10
Hips, wide; pin bones high and wide apart; rump long and level from hip bones to tail setting-----	6	
Thighs, flat and wide apart, giving ample room for udder-----	2	
Tail, slender, well set on, with good switch-----	2	
Legs, of medium length and straightness, with good hoofs-----		2
Hide-----		5
Medium thickness, mellow and elastic-----	3	
Color, shades from dark to light brown; at some seasons of the year gray; white splashes on underline of belly are objectionable but do not disqualify; dark smoky skin objectionable; hair between horns usually of lighter shade than that on body-----	2	
Udder-----		32
Size, long, wide, deep, but not pendulous or fleshy-----	6	
Attachment, firmly attached to the body-----	4	
Veins, udder veins well-developed and plainly visible-----	2	
Balance, extending well up behind and far forward, quarters even-----	5	
Sole, nearly level and not indented between teats-----	2	
Teats, of good uniform length and size, regularly and squarely placed-----	6	
Texture, mellow, free from meatiness-----	7	
Mammary veins, large, long, tortuous, elastic, and entering good wells-----		6
Disposition, quiet but alert-----		6
General appearance-----		6
Total-----		100

## PRODUCTION

The Brown Swiss produce milk of average quality as compared with the other breeds of dairy cattle. The 939 cows and heifers that had completed yearly production records and had been admitted to the Register of Production up to January 1, 1938, had an average yearly production of 13,643 pounds of milk and 548.4 pounds of butterfat per cow, with an average butterfat test of 4 percent.

Under Herd-Improvement rules Brown-Swiss herds containing 984 cows completed yearly production records with an average production of 8,576.8 pounds of milk and 352.99 pounds of butterfat.

The 10 highest butterfat and the 10 highest milk producers among the Brown Swiss, up to January 1, 1938, are listed in table 8.

TABLE 8.—*The 10 highest Brown Swiss yearly butterfat and milk production records in the United States*

Cow	Butterfat	Cow	Milk
	<i>Pounds</i>		<i>Pounds</i>
Illini Nellie 26578.....	1,200.4	Illini Nellie 26578.....	29,570
Mary's Nell 36395.....	1,109.7	Mary's Nell 36395.....	29,487
Swiss Valley Girl 10th 7887.....	1,106.3	Swiss Valley Girl 10th 7887.....	27,514
Jane of Vernon 29496.....	1,075.6	Believe 4245.....	25,848
June's College Girl 11427.....	1,062.3	Alice Lee 2nd 8777.....	24,845
Greenwood Valley Lass 18823.....	1,037.1	June's College Girl 11427.....	24,572
Swiss Girl F. C. 13853.....	1,003.8	Clepe E 14082.....	24,226
Believe 4245.....	1,002.6	Miss Mary W. of Vandalia 5th 21277.....	24,018
Forest Girl of Lake View 11998.....	971.3	Jane of Vernon 29496.....	23,569
Clepe E 14082.....	969.3	Forest Girl of Lake View 11998.....	23,556

## BULLS

Table 9 lists 10 registered Brown Swiss bulls that were proved in dairy herd-improvement associations and selected from tabulations made by the Bureau of Dairy Industry between November 1, 1935, and April 1, 1938, and reported in United States Department of Agriculture Miscellaneous Publication 277 and Miscellaneous Publication 315.<sup>4</sup> For a bull to be considered for inclusion in this table, he must have met the following requirements:

(1) He must have had five or more unselected daughters with production records, whose dams also had production records.

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 5 or more pounds.

(3) The dams of his daughters must have had an average butterfat production of 300 or more pounds.

Records of the daughters and their dams are converted where necessary to a twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records is taken.

From the sires that met these conditions the 10 whose daughters average the highest in butterfat production were selected.

TABLE 9.—*Ten registered Brown Swiss sires proved in dairy herd-improvement associations*

Name of sire	Daughter dam comparisons	Average butterfat production of daughters	Increase over dams
	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>
June's College Girl's Wallace of Walhalla 24084.....	7	497	79
Betty's Champion of Spring Valley 25046.....	9	463	49
Zella C's College Boy 17585.....	10	460	159
June's College Girl's Grandson (Twin) 18695.....	12	442	107
June's College Boy 14102.....	7	405	11
Olympe Lad of Walhalla 14158.....	6	394	13
Vogel Boy 1st of Valley Grove 12437.....	5	394	6
Silver Boy Jim 23014.....	5	393	9
Jack of Cloverdale Farm 12337.....	6	384	28
Kenneth of Sedgely 7722.....	9	349	36

<sup>4</sup> See footnote 2, p. 13.

## DUTCH BELTED

## ORIGIN AND HISTORY

The Dutch Belted breed originated in the Netherlands about two centuries ago. The breed gets its name from both the original home and from the distinctive color marking. It has probably been developed from the same cattle as the Holstein-Friesian. The early records show that the Dutch Belted were bred by the nobility of Holland, and while the unusual color marking was perhaps the chief basis of selection, the qualities of milk production and dairy refinement were not lost sight of.

## IMPORTATION AND DISTRIBUTION

The first importation of Dutch Belted cattle into the United States was made probably in 1838. The first importation of importance, however, was made in 1840 by P. T. Barnum for show purposes. These cattle were later placed on a farm, and this seems to be the beginning of Dutch Belted cattle in the United States. A number were imported from that time on until 1885, and some in 1906 and 1907. Since then no importations have been made on account of the prevalence of foot-and-mouth disease in Europe. It is estimated that on January 1, 1938, there were 500 registered animals of this breed in the United States.

## GENERAL CHARACTERISTICS

Dutch Belted cattle (figs. 8 and 9) have the general dairy conformation, which includes fineness of bone and freedom from beefiness. The aim of the breeders of these cattle is to breed animals that have no white other than that of the standard belt around the body. This belt begins back of the shoulder and may extend to the front of the hips but must not be narrower than 6 inches at the narrowest point. There must be no black spots in the belt on females. The width of the belt on each animal tends to be uniform around the body. The remainder of the animal is coal black except that females may have not to exceed 3 inches of white on hind feet above the hoof and males may have not to exceed 2½ inches of white on one hind foot above the hoof.

Calves at birth range in weight from 60 to 90 pounds. Well-developed mature cows weigh from 1,000 to 1,500 pounds, averaging about 1,200 pounds; and bulls from 1,500 to 2,000 pounds, averaging about 1,700 pounds.

## SCALE OF POINTS FOR DUTCH BELTED COW

	<i>Perfect score</i>
Body color, black, with a clearly defined continuous white belt. The belt to be of medium width, beginning behind the shoulder and extending nearly to the hips-----	8
Head, comparatively long and somewhat dishing; broad between the eyes. Poll, prominent; muzzle, fine; dark tongue-----	6
Eyes, black, full, and mild. Horns long compared with their diameter--	4
Neck, fine and moderately thin and should harmonize in symmetry with the head and shoulders-----	6

	<i>Perfect score</i>
Shoulders, fine at top, becoming deep and broad as they extend backward and downward, with a low chest.....	4
Barrel, large and deep, with well-developed abdomen; ribs well-rounded and free from fat.....	10
Hips, broad, and chine level, with full loin.....	10
Rump, high, long, and broad.....	6
Hind quarters, long and deep, rear line incurving; tail long, slim, tapering to a full switch.....	8
Legs, short, clean, standing well apart.....	3
Udder, large, well-developed front and rear; teats of convenient size and apart; mammary veins large, long, and crooked, entering large orifices.....	20
Escutcheon.....	2
Hair, fine and soft; skin of moderate thickness of a rich, dark, or yellow color.....	3
Quiet disposition and free from excessive fat.....	4
General condition and apparent constitution.....	6
Perfection.....	100

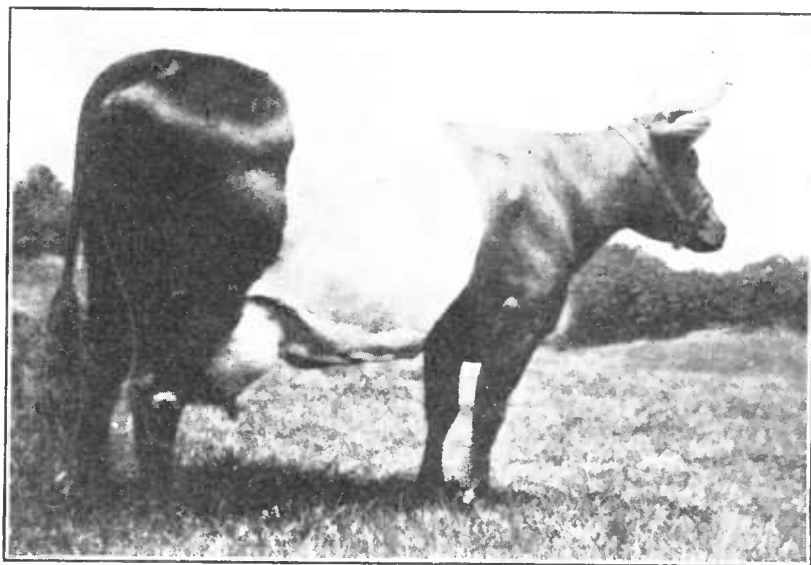


FIGURE 8.—Dutch Belted cow, Lorraine of Brunswick 3020. Leading butterfat and milk producer of the breed in the United States.

#### PRODUCTION

By referring to table 3 it will be seen that, in the percentage of butterfat contained in her milk, the Dutch Belted cow ranks between the Holstein and the Ayrshire. The 76 Dutch Belted cows and heifers that finished yearly official records up to January 1, 1938, show an average production of 10,570 pounds of milk and 417 pounds of butterfat, with an average test of 3.94 percent.

The 10 highest producers of butterfat and the 10 highest producers of milk among Dutch Belted cows, up to January 1, 1938, are listed in table 10.

TABLE 10.—The 10 highest Dutch Belled yearly butterfat and milk production records in the United States

Cow	Butterfat	Cow	Milk
	Pounds		Pounds
Loraine of Brunswick 3020.....	816.5	Loraine of Brunswick 3020.....	18,211
Marilyn 3232.....	793.2	Gem of Columbia 2038.....	17,268
Gloria 3231.....	780.1	Marilyn 3232.....	16,878
Sally Ann 3838.....	736.9	Gloria 3231.....	16,546
Green River Neritta 3d 3065.....	691.7	Sally Ann 3838.....	16,328
Eunice Ann 3423.....	681.4	Green River Neritta 3d 3065.....	16,074
Angelina 2641.....	668.1	Green River Neritta 2d 2958.....	16,055
Gem of Columbia 2038.....	633.9	Angelina 2641.....	16,023
Green River Neritta 2d 2958.....	582.2	Eunice Ann 3423.....	14,935
Glenbeulah's Beauty 2172.....	531.2	Elsie Blossoni 2829.....	14,688

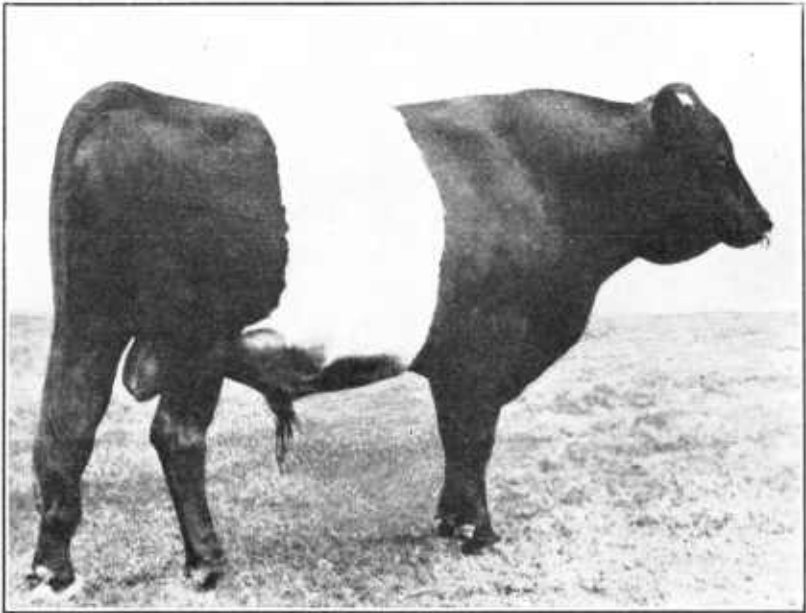


FIGURE 9.—Dutch Belted bull, Keith 934.

GUERNSEY

ORIGIN AND HISTORY

The Guernsey breed originated in the Channel Islands, near the north coast of France. It is thought that this breed has been developed from a cross between the large red and brindle cattle of Normandy and the small red cattle of Brittany, in France. The exact date of origin is unknown, but it was probably in the latter part of the seventeenth century or before.

All the cattle in the Channel Islands were at one time known as Alderneys. After laws had been enacted forbidding the importation of cattle from the Continent or between the islands of Guernsey and Jersey, two distinct breeds came to be recognized. The one on the islands of Alderney, Sark, and Guernsey became known as the Guernsey breed and the one on Jersey Island as the Jersey breed.

## IMPORTATION AND DISTRIBUTION

The first cattle from the Channel Islands brought to the United States were called Alderneys. They were imported in the latter part of the eighteenth century and may have been either Guernsey or Jersey cattle. The first animals recorded in the herdbook of the American Guernsey Cattle Club were brought over in 1830. A few more were imported in the next two decades, but not until about 1870 were extensive importations made. Since that time importations have been made nearly every year.

Table 1 shows that, in 1932, there were in the United States about 3,709,000 animals carrying more or less Guernsey blood. According to table 2, there were 200,721 registered Guernseys in the United States in 1930. By January 1, 1938, it was estimated that the number of registered Guernseys had increased to 237,430.<sup>5</sup>

## GENERAL CHARACTERISTICS

In size the Guernseys (figs. 10, 11, and 12) are about equal to the Ayrshires and slightly smaller than the Brown Swiss. The calves weigh from 55 to 85 pounds at birth and reach maturity early. When mature, the cows weigh from 800 to 1,400 pounds, averaging about 1,050; and the bulls from 1,200 to 2,200 pounds, averaging about 1,600 pounds.

The color of the Guernseys is fawn and white, with fawn predominating. A light cherry red with white is also found. Sometimes white may be entirely lacking except on the legs. The switch is usually white and the tongue light in color. The horns are of moderate size and amber in color. The skin is yellow.

## SCALE OF POINTS FOR GUERNSEY COW

	<i>Perfect score</i>
Style and symmetry, attractive individuality revealing vigor, femininity, and breed character; a harmonious blending and correlation of parts; an active well-balanced walk-----	5
Head, moderately long, clean-cut, showing femininity and breed character; a lean face; wide mouth and broad muzzle with open nostrils; strong jaws; full bright eyes with gentle expression; forehead broad between the eyes and moderately dishing; bridge of nose straight-----	5
Horns, yellow, small at base; of medium length; inclining forward; not too spreading-----	1
Neck, long and thin; clean throat, smoothly blending into shoulders-----	2
Withers, chine rising above shoulder blades, with open vertebrae-----	2
Shoulders, shoulder blades set smoothly against chine and chest wall, forming neat junction with the body-----	2
Chest, wide, and deep at heart with least possible depression back of the shoulders-----	4
Back, appearing straight from withers to hips-----	5
Loin, strong, broad, and nearly level laterally; width carried forward to junction with the ribs-----	3
Hips, wide apart, approximately level with the back; free from excess tissue-----	2
Rump, long, continuing with level of the back; approximately level between hip bone and pin bones. Pin bones well apart-----	4
Thurls, wide apart and high-----	2
Barrel, deep and long, with well-sprung ribs. Individual ribs, long, flat, wide apart, and free from excess tissue-----	10

<sup>5</sup> See footnote 1, p. 9.



	<i>Perfect score</i>
Thighs, incurving when viewed from side, thin and wide apart when viewed from rear; well cut up between thighs-----	2
Legs, flat flinty bone, tendons clearly defined; front legs straight; hind legs nearly upright from hock to pastern, set wide apart and nearly straight when viewed from behind. Pastern, strong and springy-----	2
Skin, loose and pliable, and not thick, with oily feeling; hair, fine and silky-----	3
Tail, long, tapering with neat, strong, level attachment, neatly set between pin bones; fine bones and hair; nicely balanced switch-----	2
Udder, uniformly fine in texture; free from meatiness; covered with pliable velvety skin-----	3
Veins prominent-----	1
Attachment to body: Strong, long, and wide-----	4
Extending well forward; extending well up behind-----	4
Sole: Level between teats-----	2
Teats: Of even, convenient size; cylindrical in shape; well apart and squarely placed, plumb-----	3
Mammary veins, long, tortuous, prominent, and branching, with large numerous wells-----	3
Secretions indicating color of product, indicated by the pigment secretion of skin, which should be a deep yellow inclining toward orange in color; especially discernible in the ear, at the end of bone of tail, around the eyes and nose, on the udder and teats, and at the base of horns; hoofs and horns amber colored-----	20
Color markings, a shade of fawn with white markings-----	2
Size, mature cows, about 1,100 pounds in milking condition-----	2
<b>Total</b> -----	<b>100</b>

#### PRODUCTION

Guernsey milk has a high percentage of butterfat and a yellow color.

The 49,212 Guernsey records completed by 39,991 cows in the Advanced Register up to January 1, 1938, average 10,094.7 pounds of milk containing 502.2 pounds of butterfat, or 4.97 percent of butterfat.

Under Herd-Improvement rules Guernsey herds containing 4,561 cows completed 5,299 yearly records up to January 1, 1938, with an average production of 8,629.1 pounds of milk and 425.2 pounds of butterfat.

The 10 highest butterfat and the 10 highest milk producers among the Guernseys, up to January 1, 1938, are shown in table 11.

TABLE 11.—*The 10 highest Guernsey yearly butterfat and milk production records in the United States*

Cow	Butterfat	Cow	Milk
	<i>Pounds</i>		<i>Pounds</i>
Cathedral Rosalie 334299-----	1, 213. 1	Murne Cowan 19597-----	24, 008
Noranda's Milkmaid 266975-----	1, 155. 8	Cathedral Rosalie 334299-----	23, 714
Anesthesia Faith of Hill Stead 114354-----	1, 112. 5	Grassland Zenoria 185315-----	22, 848
Countess Prue 43785-----	1, 103. 3	Topsy of Thousand Springs 137339-----	22, 000
Murne Cowan 19597-----	1, 098. 2	Pet of LaGrange 2d 48429-----	21, 968
May Rilma 22761-----	1, 073. 4	Trixie Alice of Cowham Farm 255436-----	21, 932
Baudy's Daisy of Buena Vista 212457-----	1, 063. 4	Imp. Surprise of Brookmead 281287-----	21, 341
Imp. Charmeuse of Ponchez 253818-----	1, 057. 8	Peterkin's Beauty of Fairview S. 113341-----	21, 111
Marigold of Elgercon 137240-----	1, 028. 3	Katherine's Trixie 100396-----	21, 071
Wolfpen Lilac 221332-----	1, 028. 3	Baudy's Daisy of Buena Vista 212457-----	21, 056

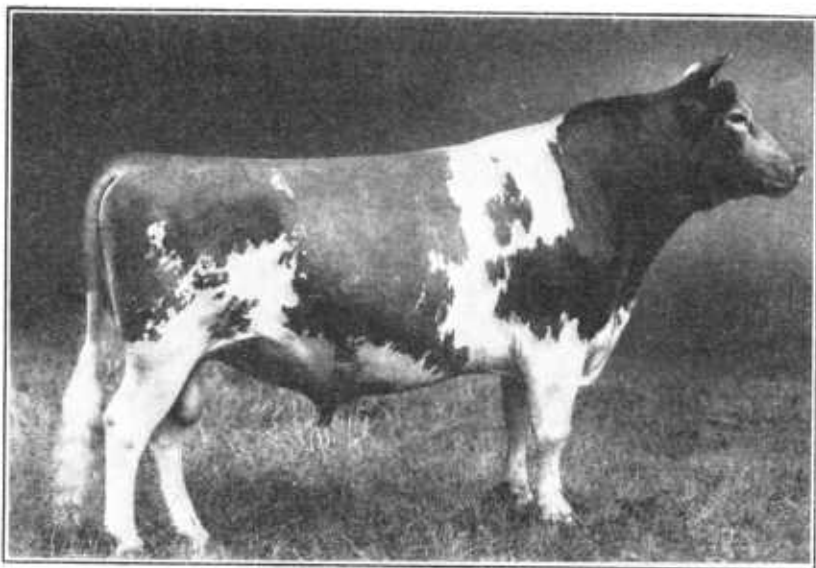


FIGURE 10.—Guernsey bull, Alfalfa Farm Philosopher 203950, Grand Champion, National Dairy Show, 1937.



FIGURE 11.—Guernsey cow, Cathedral Rosalie 334299, Champion butterfat producer of the breed in the United States.

## BULLS

Table 12 lists 10 registered Guernsey bulls that were proved in dairy herd-improvement associations and selected from tabulations made by the Bureau of Dairy Industry between November 1, 1935, and April 1, 1938, and reported in United States Department of Agriculture Miscellaneous Publication 277 and Miscellaneous Publication 315.<sup>a</sup> For a bull to be considered for inclusion in this table he must have met the following requirements:

(1) He must have had 10 or more unselected daughters with production records, whose dams also had production records;

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds;

(3) The dams of his daughters must have had an average butterfat production of 300 or more pounds.

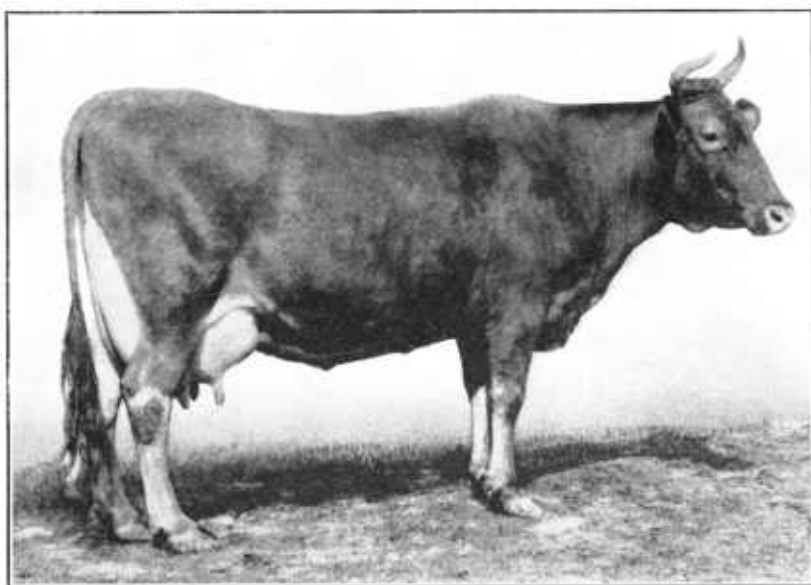


FIGURE 12.—Guernsey cow, Murne Cowan 19597. Champion milk producer of the breed in the United States

TABLE 12.—Ten registered Guernsey sires proved in dairy herd-improvement associations

Name of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	Number	Pounds	Pounds
Florham Superior 70439.....	29	518	131
Bethany Adventurer 172793.....	15	461	77
King Strongheart of Elgercon 116270.....	13	459	39
Firerest La France's Royal 147632.....	10	456	75
Tam-o-Shanter Bellboy 184435.....	11	450	40
Africaner Noble of White Farms 114550.....	12	443	25
Atamansit Conqueror 86107.....	22	438	26
Firerest La France's Prince 140870.....	15	437	39
Langwater Arrogant 182485.....	11	436	44
Horton Farm Progress 180880.....	10	432	114

<sup>a</sup> See footnote 2, p. 13.

Records of the daughters and their dams are converted where necessary to twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records is taken.

From the sires that met these conditions the 10 whose daughters average the highest in butterfat production were selected.

## HOLSTEIN-FRIESIAN

### ORIGIN AND HISTORY

The cattle from which our present Holstein-Friesian breed has descended were developed in the northern part of the Netherlands, especially in the Province of Friesland, and in the neighboring Provinces of northern Germany. The time of their origin as a recognized distinct breed is unknown, but it is probable that they have been selected for their dairy qualities for about 2,000 years.

Before 1885 there were two associations furthering the interests of this breed in the United States. One maintained a Holstein herdbook, and the other a Dutch-Friesian herdbook. In 1885 the two associations were combined into the Holstein-Friesian Association of America, and from that time on only one herd register has been maintained. This is known as the Holstein-Friesian herdbook. While the official name of the breed is Holstein-Friesian, the single word "Holstein" is more common in ordinary use.

### IMPORTATION AND DISTRIBUTION

The first importations of Holsteins into the United States were made in 1795, and afterwards a few were brought in from time to time up to 1879, following which heavy importations were made each year until 1887. Thereafter only a few were imported up to 1905, and since then, because of the prevalence of foot-and-mouth disease in Europe, very few have been imported.

Table 1 shows that in 1932 there were in the United States 9,465,000 animals carrying more or less Holstein blood. According to table 2, there were, in 1930, 649,739 registered Holsteins in the United States. It is estimated that on January 1, 1938, the number of registered Holsteins was 483,826.<sup>7</sup> Holstein cattle are found throughout all the 48 States, though by far the largest number are in New York, Wisconsin, Pennsylvania, Ohio, Michigan, and Illinois, in the order named. These 6 States contain more than 60 percent of the registered Holstein cattle in the United States.

### GENERAL CHARACTERISTICS

The Holsteins (figs. 13, 14, and 15) are the largest of the dairy breeds. They have large frames, not heavily covered with flesh. The calves weigh from 70 to 105 pounds at birth. The mature bulls weigh from 1,600 to 2,200, and average about 1,900 pounds; and the mature cows weigh from 1,100 to 1,750, and average about 1,250 pounds. The color is black and white, with the colors sharply defined rather than blended. They may be nearly all white or black, but no solid-color animal can be registered.

<sup>7</sup> See footnote 1, p. 9.

## SCALE OF POINTS FOR HOLSTEIN-FRIESIAN COW

	<i>Perfect score</i>
Forehead, broad between the eyes; dishing-----	2
Face, of medium length, clean-cut, feminine; the bridge of the nose straight-----	1
Muzzle, broad, with strong lips; nostrils, large and open; jaws, strong--	3
Ears, of medium size; of fine texture; well-carried-----	1
Eyes, large; full; mild; bright-----	2
Horns, small; tapering finely toward the tips; set moderately narrow at base; inclining forward; well-curved inward; not to be discounted if neatly dehorned-----	1
Neck, long; fine and clean at junction with the head; evenly and smoothly joined to shoulders-----	3
Shoulders, slightly lower than the hips; smooth and rounding over tops; moderately broad and full at sides-----	3
Crops, full; level with the shoulders-----	4
Chine, straight; strong; broadly developed, with open vertebrae-----	3
Loins and hips, broad; level or nearly level between the hip bones; level and strong laterally; spreading from chine broadly and nearly level; hip bones fairly prominent-----	6
Rump, long; broad, with roomy pelvis; nearly level laterally; full above the thurls; carried out straight to tail head-----	6
Pin bones, wide between; nearly level with hips-----	2
Thurls, high; broad through-----	2
Tail head and tail, strong at base without coarseness; the setting well back; tail long, tapering finely to a full switch-----	2
Chest, deep; wide; well-filled and smooth in the brisket; broad between the forearms; full in the foreflanks-----	6
Barrel, long; deep; well rounded; strongly and trimly held up-----	9
Flanks, deep; full-----	2
Thighs, wide; deep; straight behind; wide and moderately full at the outsides; twist well cut out and filled with development of udder; escutcheon well defined-----	2
Mammary veins, large, tortuous, entering large orifices or double ex- tension; with additional developments, such as branches and connections entering numerous orifices-----	6
Udder, capacious; flexible; quarters even and of uniform texture, filling the space in the rear below the twist, extending well forward; broad and well-attached-----	20
Teats, well-formed; plumb; of convenient size; properly placed-----	4
Legs, medium length; clean; nearly straight; wide apart; firmly and squarely set under the body; arms wide, strong, and tapering-----	4
Hair and hide, hair healthy in appearance; fine and soft; hide of medium thickness; mellow and loose-----	6
Total-----	100

## PRODUCTION

The Holsteins produce a larger quantity of milk, with a lower butterfat content, than any other dairy breed. The milk is not so highly colored as that from the Guernseys and Jerseys.

The 56,007 Advanced-Register records of Holstein cows and heifers that were completed up to January 1, 1938, include 15,354 10-month records, and show an average yearly production of 16,005 pounds of milk and 546 pounds of butterfat, the average test being 3.4 percent.

In the Herd-Improvement Register, up to October 1, 1937, 2,455 Holstein herds containing 52,369 cows had completed yearly records with an average of 11,101 pounds of milk and 380 pounds of butterfat.

The 10 highest butterfat and the 10 highest milk producers among the Holsteins, up to January 1, 1938, are listed in table 13.

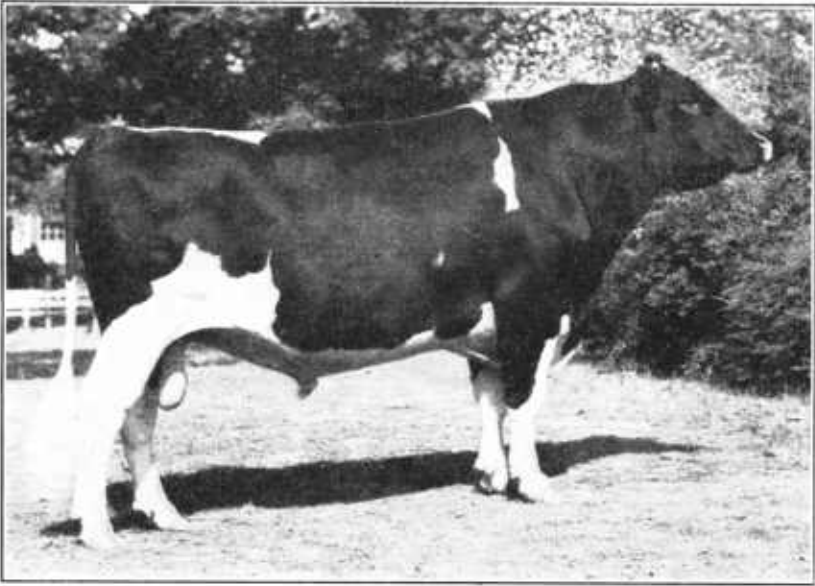


FIGURE 13.—Holstein bull, King Bessie Korndyke Ormsby 14th 667791. Grand Champion, National Dairy Show, 1937.

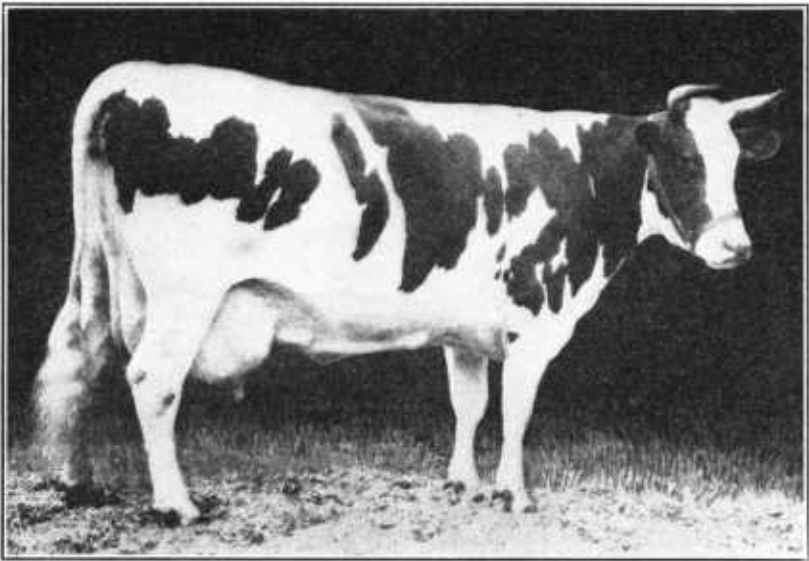


FIGURE 14.—Holstein cow, Segis Pieterje Prospect 221846. This cow had the highest yearly milk record of all the breeds in the United States up to February 11, 1936.

TABLE 13.—*The 10 highest yearly butterfat- and milk-production records of Holstein cows registered in the United States*

Cow	Butterfat	Cow	Milk
	Pounds		Pounds
Carnation Ormsby Butter King 1165152.....	1,402.0	Carnation Ormsby Butter King 1165152.....	38,607
DeKol Plus Segis Dixie 295135 <sup>1</sup> .....	1,349.3	Segis Pietertje Prospect 221846.....	37,381
Carnation Ormsby Nellie 1326284.....	1,328.8	Carnation Prospect Veeman 799610.....	36,859
Calamity Nig of Elmwood Farms 1560447.....	1,327.9	Helm Veeman Woodcrest 486877.....	36,218
Carnation Ormsby Segis Beauty 1203395.....	1,290.4	Carnation Ormsby Nellie 1326284.....	35,887
Daisy Aaggie Ormsby 3d 571569.....	1,286.2	Lady Pride Pontiac Lieuwkje 849602.....	35,627
Carnation Prospect Ormsby Gluck 1042591.....	1,225.4	Kolrain Marion Finderne 317396.....	35,340
Femco Johanna Bess Fayne 1073533.....	1,220.4	Alcartra Ormsby Canary 1135532.....	35,272
May Walker Ollie Homestead 300043.....	1,218.6	Kolrain Finderne Bess 291570.....	35,085
Hollywood Lilith Palmyra Abbekerk 400491.....	1,206.8	Kathleen Triumph 1032712.....	34,972

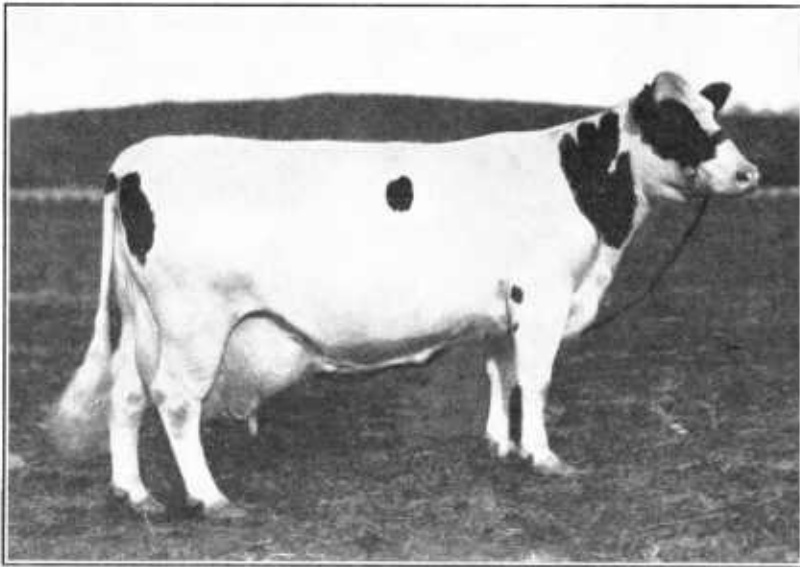
<sup>1</sup> Canadian cow.

FIGURE 15.—Holstein cow, Carnation Ormsby Butter King 1165152. This cow held the highest yearly milk and butterfat record of all the breeds in the United States up to January 1, 1938.

## BULLS

Table 14 lists 10 registered Holstein bulls that were proved in dairy herd-improvement associations and selected from tabulations made by the Bureau of Dairy Industry between November 1, 1935, and April 1, 1938, and reported in United States Department of Agriculture Miscellaneous Publication 277 and Miscellaneous Publication 315.<sup>8</sup> For a bull to be considered for inclusion in this table, he must have met the following requirements:

(1) He must have had 10 or more unselected daughters with production records, whose dams also had production records.

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds.

<sup>8</sup> See footnote 2, p. 13.

(3) The dams of his daughters must have had an average butterfat production of 300 or more pounds.

Records of the daughters and their dams are converted where necessary to twice-a-day milking, 6-year-old basis, and if a cow had more than one record, the average of all her records is taken.

From the sires that met these conditions the 10 whose daughters average the highest in butterfat production were selected.

TABLE 14.—*Ten registered Holstein-Friesian sires proved in dairy herd-improvement associations*

Name of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	Number	Pounds	Pounds
King Champion Jannek 18th 460879 .....	17	598	128
Mohofar Colantha Ormsby 617203 .....	11	547	102
Octagon Korndyke De Kol 566341 .....	13	519	185
Korndyke Doxey Clothilde 455345 .....	13	517	104
Nittanyvale Aaggie Loyalsock 486534 .....	39	514	44
Sir Inka May 21st 561789 .....	67	511	32
M M King Ormsby 516202 .....	15	510	39
Duke Pietertje Korndyke Ormsby 15th 354345 .....	11	490	82
King Ormsby of Iodak 576357 .....	13	488	103
Dennington Courtland Denver King 535855 .....	11	488	70

## JERSEY

### ORIGIN AND HISTORY

The Jersey breed originated in the Island of Jersey, one of the group of Channel Islands, between England and France. In 1789 a law was passed prohibiting the importation of cattle into Jersey Island except for immediate slaughter. Shortly afterwards the cattle on that island became known by the name of Jersey instead of Alderney. No outside blood has been introduced since that time.

### IMPORTATION AND DISTRIBUTION

The first importation of Jerseys into the United States was made in 1850. A few more were brought over about 20 years later, and from 1870 to 1890 there were numerous importations. Since 1890 many Jerseys have been imported every year.

The Jerseys are more evenly distributed in the United States than any other breed. Table 1 shows that, in 1932, there were in the United States 9,961,000 animals carrying more or less Jersey blood. According to table 2, in 1930 there were 354,939 registered Jerseys in the United States. It is estimated that on January 1, 1938, the number of registered Jerseys was 252,811.<sup>9</sup>

### GENERAL CHARACTERISTICS

The Jersey (figs. 16, 17, and 18) is the smallest in size of the breeds discussed in this bulletin. The calves weigh from 40 to 75 pounds at birth. The heifers develop rapidly and mature sufficiently to drop the first calf at 24 months of age. The mature cows weigh from 700 to 1,200 pounds, averaging about 900 pounds, and the bulls weigh from 1,200 to 1,800, averaging about 1,500 pounds.

<sup>9</sup> See footnote 1, p. 9.



The color of Jerseys is usually some shade of fawn or cream color, though different shades of mouse color, gray, and brown are common and some individuals approach black. They may be solid color of any of these shades, or spotted with white. The muzzles and tongues are usually black or lead-colored, but light-colored tongues are not uncommon, and around the muzzle is a white or mealy ring.

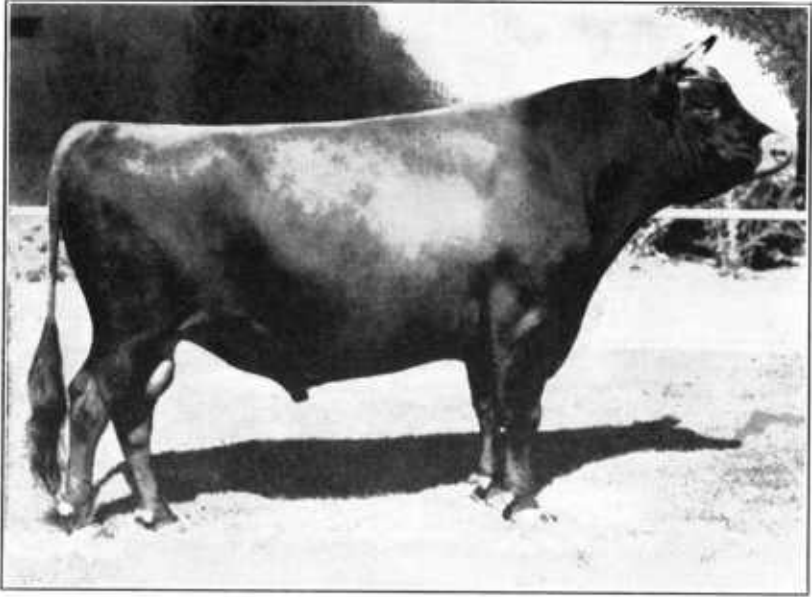


FIGURE 16.—Jersey bull, Foremost Highflyer 347210. Grand Champion, National Dairy Show, 1937.

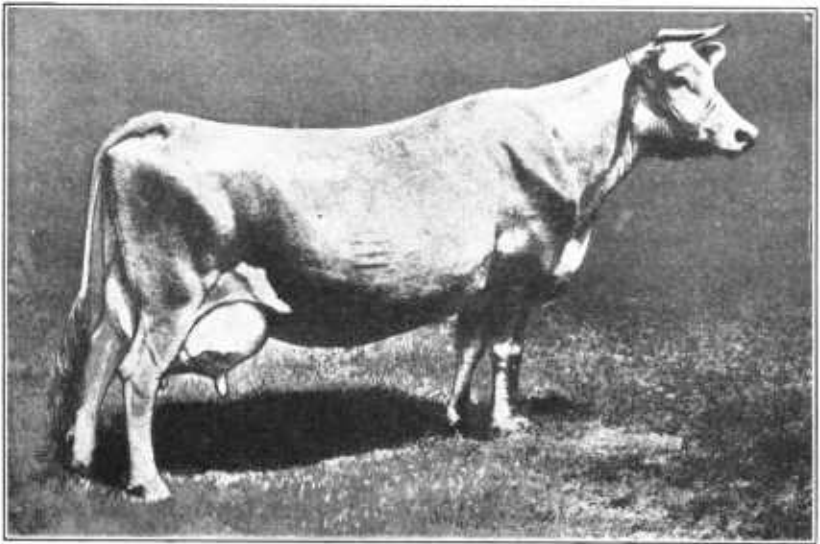


FIGURE 17.—Jersey cow, Abigail of Hillside 457241. Highest milk producer of the breed in the United States.

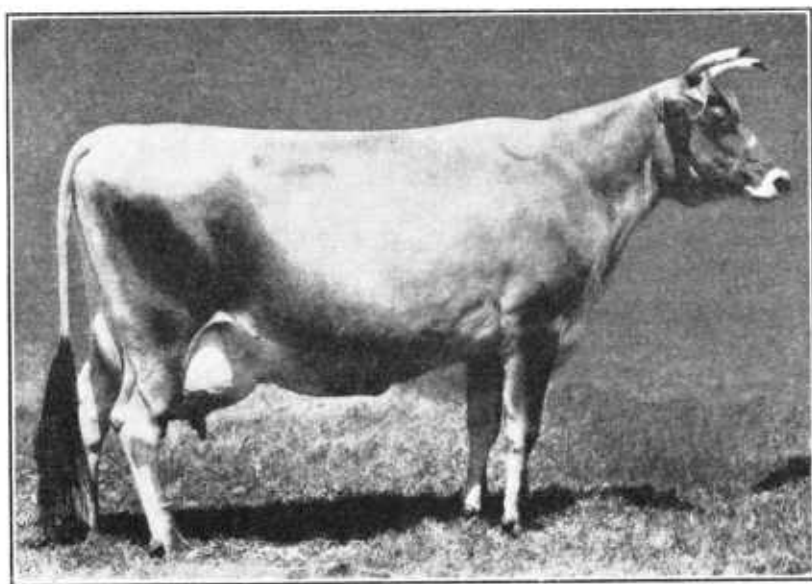


FIGURE 18.—Jersey cow, Stockwell's April Pogis of H. P. 694544. Highest butterfat producer of the breed in the United States.

#### SCALE OF POINTS FOR JERSEY COW

##### DAIRY TEMPERAMENT AND CONSTITUTION

	<i>Perfect score</i>
Head -----	4
Medium size, lean; face dished; broad between eyes; horns medium size, incurving -----	3
Eyes full and placid; ears medium size, fine, carried alert; muzzle broad, with wide-open nostrils and muscular lips; jaw strong -----	4
Neck thin, rather long, with clean throat, neatly joined to head and shoulders -----	4
Body -----	37
Shoulders light, good distance through from point to point, but thin at withers; chest deep and full between and just back of forelegs -----	5
Ribs amply sprung and wide apart, giving wedge shape, with deep, large abdomen, firmly held up, with strong, muscular development -----	10
Back straight and strong, with prominent spinal processes; loins broad and strong -----	5
Rump long to tail setting, and level from hip bones to rump bones -----	6
Hip bones high and wide apart -----	3
Thighs flat and wide apart, giving ample room for udder -----	3
Legs proportionate to size and of fine quality, well apart, with good feet, and not weaving or crossing in walking -----	2
Hide loose and mellow -----	2
Tail thin, long, with good switch, not coarse at setting on -----	1

##### MAMMARY DEVELOPMENT

Udder -----	26
Large size, flexible, and not fleshy -----	6
Broad, level or spherical, not deeply cut between teats -----	4
Fore udder full and well-rounded, running well forward of front teats -----	10
Rear udder well-rounded, and well out and up behind -----	6

	Perfect score
Teats of good and uniform length and size, regularly and squarely placed-----	8
Milk veins large; long; tortuous and elastic; entering large and numerous orifices-----	4
SIZE AND GENERAL APPEARANCE	
Size, mature cows, 800 to 1,000 pounds-----	4
General appearance, a symmetrical balancing of all the parts, and a proportion of parts to one another, depending on size of animal; with the general appearance of a high-class animal, with capacity for feed and productiveness at pail-----	10
Total score-----	100

PRODUCTION

Jersey milk is yellow and high in percentage of butterfat. Up to January 1, 1938, 56,789 Register-of-Merit records had been completed by 43,033 Jersey cows. The average of these records made by cows of all ages in both the 305-day and 365-day divisions was 458.9 pounds of butterfat and 8,556 pounds of milk a year, with an average test of 5.36 percent.

In the Herd-Improvement Registry 1,103 Jersey herds had completed yearly records up to January 1, 1938. These herds included 27,364 cows, with an average yearly production of 359.5 pounds of butterfat and 6,797 pounds of milk with an average test of 5.29 percent.

The 10 highest butterfat and the 10 highest milk producers among the Jerseys, up to January 1, 1938, are listed in table 15.

TABLE 15.—The 10 highest Jersey yearly butterfat and milk production records in the United States

Cow	Butter- fat	Cow	Milk
	Pounds		Pounds
Stockwell's April Pogis of H. P. 694544-----	1, 218. 5	Abigail of Hillside 457241-----	23, 677
Abigail of Hillside 457241-----	1, 197. 5	Madeline of Hillside 389336-----	20, 624
Darling's Jolly Lassie 435948-----	1, 141. 3	Fauvic's Star 313018-----	20, 616
Groff's Constance 367292-----	1, 130. 1	Golden Chief's Lady May 601637-----	19, 922
Prince's Emma of H. S. F. 359390-----	1, 110. 0	Fauvic Ruth 385463-----	19, 805
Mayflower's Pogis Surprise 705971-----	1, 105. 1	Passport 219742-----	19, 695
California's Rinda's Insie 565559-----	1, 073. 4	Red Lady 396118-----	19, 608
Imp. Cancalaise 696129-----	1, 072. 4	Sybil's Miss May 477787-----	19, 239
Sybil's Lucky June 959891-----	1, 055. 7	Lad's Likeness 338246-----	19, 223
Oxford Stockwell Victress 731866-----	1, 051. 7	Eminent's Jim's Owl 297471-----	19, 099

BULLS

Table 16 lists 10 registered Jersey bulls that were proved in dairy herd-improvement associations and selected from tabulations made by the Bureau of Dairy Industry between November 1, 1935, and April 1, 1938, and reported in United States Department of Agriculture Miscellaneous Publication 277 and Miscellaneous Publication 315.<sup>10</sup> For a bull to be considered for inclusion in this table, he must have met the following requirements:

<sup>10</sup> See footnote 2, p 13

(1) He must have had 10 or more unselected daughters with production records, whose dams also had production records.

(2) His daughters must have had an average 305-day butterfat production which exceeded that of the dams by 25 or more pounds.

(3) The dams of his daughters must have had an average butterfat production of 300 or more pounds.

Records of the daughters and their dams are converted where necessary to a twice-a-day milking, 6-year old basis, and if a cow had more than one record, the average of all her records is taken.

From the sires that met these conditions, the 10 whose daughters average the highest in butterfat production were selected.

TABLE 16.—*Ten registered Jersey sires proved in dairy herd-improvement associations*

Name of sire	Daughter-dam comparisons	Average butterfat production of daughters	Increase over dams
	Number	Pounds	Pounds
Smoky's Pogis 318391.....	10	592	50
Gapon's Countess' Lad 159969.....	19	496	36
Owl's Superior Duke 314894.....	13	491	26
Sophie 19th's Victor 13th 207415.....	14	481	124
Vixen's Oxford Beau 131638.....	10	473	82
S.'s T.'s Floss' Duke 216516.....	13	467	28
Gold Ring's Oxford Lad 293667.....	12	448	111
Brookside Owl 278757.....	21	445	111
Interested May's Raleigh 283110.....	10	445	99
Sybil's Ixia's Majesty 292506.....	13	439	27

#### THE AMERICAN DAIRY CATTLE CLUB

The American Dairy Cattle Club was organized under the laws of the State of Illinois and filed its certificate of organization November 14, 1936. According to its bylaws this club was formed to improve the dairy cattle of the United States, regardless of color or previous breeding, through the practice of continuously testing the production of females and testing out bulls, in the herds of both members and nonmembers under rules established by the board of directors.

An animal to be registered must have a production record in the case of females or an index in the case of males, which meets certain requirements, and it must be the progeny of animals listed in the Third Order, or of such an animal and a registered animal, or of registered animals. Third Order animals must be the progeny of animals in the Second Order or higher, and animals in the Second Order must be the progeny of animals in the First Order or higher. There are no ancestry requirements for listing in the First Order.

The minimum production requirements for each order and for registration are given in table 17, and are for 6-year-old cows and for 305-day records on twice-a-day milking.

The bulls must be proved by at least five daughter-dam comparisons and the index calculated on milk and test. The circumstances under which the records are made and reported are also taken into consideration. No animals had been registered up to January 1, 1938.

TABLE 17.—*Production requirements for listings and for registry in American Dairy Cattle Club*

Listing	Cows			Bulls (proved-sire index)		
	Milk production	Butter-fat test	Butter-fat production	Milk production	Butter-fat test	Butter-fat production
	<i>Pounds</i>	<i>Percent</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Percent</i>	<i>Pounds</i>
First Order.....	4,000	-----	-----	6,000	3.0	-----
Second Order.....	6,000	3.0	-----	8,000	3.5	-----
Third Order.....	8,000	3.5	-----	10,000	3.7	-----
Registry.....	8,000	3.7	425	10,000	3.7	450

## BREED ASSOCIATIONS

The various breed associations and clubs maintain offices and forces whose duty it is (1) to keep the herdbooks for their respective breeds; (2) to keep a record of the animals that have qualified for the additional registration because of meritorious performance; and (3) to further the interest of the breed in other ways. The official names of these organizations, the names of their respective secretaries, and their addresses are as follows:

American Dairy Cattle Club, Clifford L. Clevenger, Secretary, 11 South LaSalle Street, Chicago, Ill.

American Guernsey Cattle Club, Karl Musser, secretary, Peterboro, N. H.

American Jersey Cattle Club, L. W. Morley, secretary, 324 West Twenty-third Street, New York, N. Y.

Ayrshire Breeders' Association of the United States of America, C. T. Conklin, secretary, Brandon, Vt.

Brown Swiss Cattle Breeders' Association of America, Ira Inman, secretary, Beloit, Wis.

Dutch Belted Cattle Association of America, P. I. Horning, secretary, Wells, Minn.

Holstein-Friesian Association of America, Houghton Seaverns, secretary, Brattleboro, Vt.